

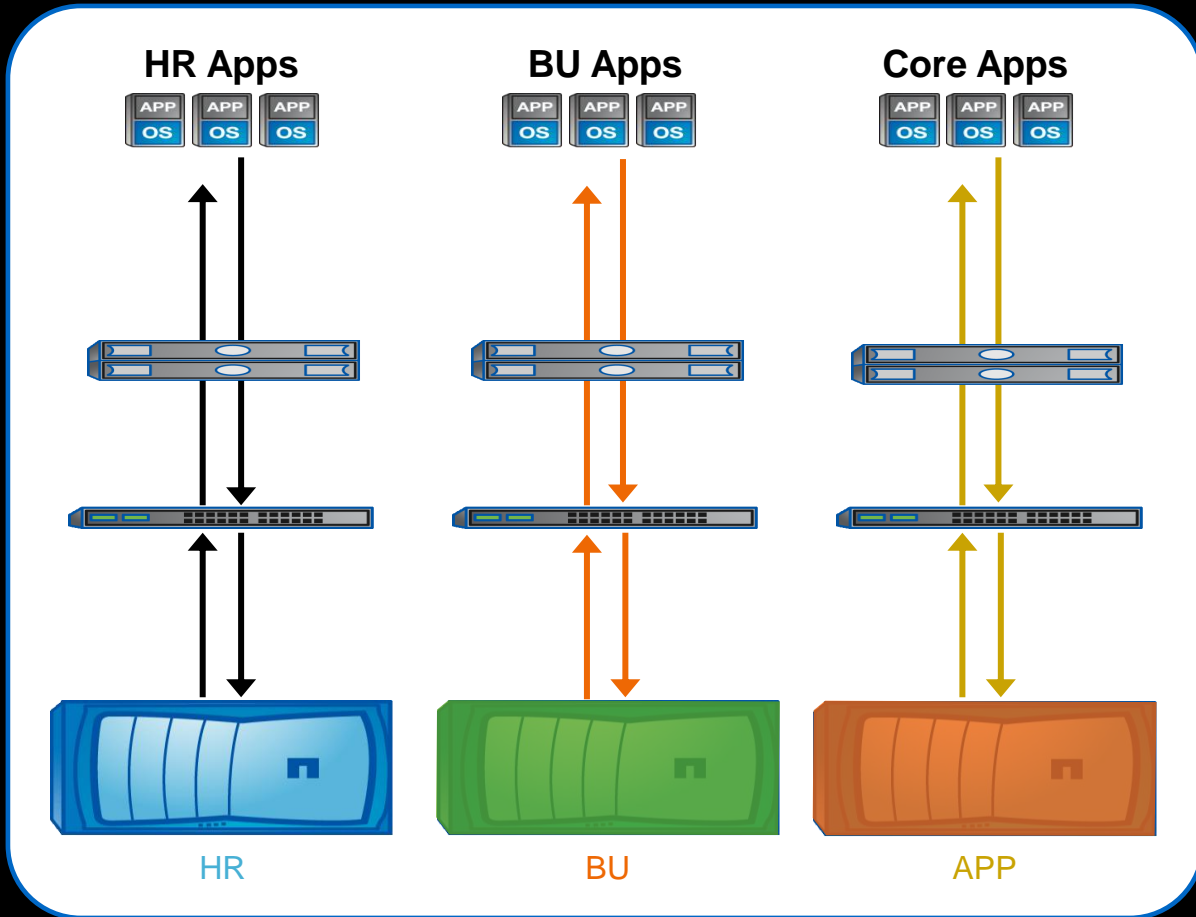


Cisco Validated Designs: Secure Multi Tenancy Architecture

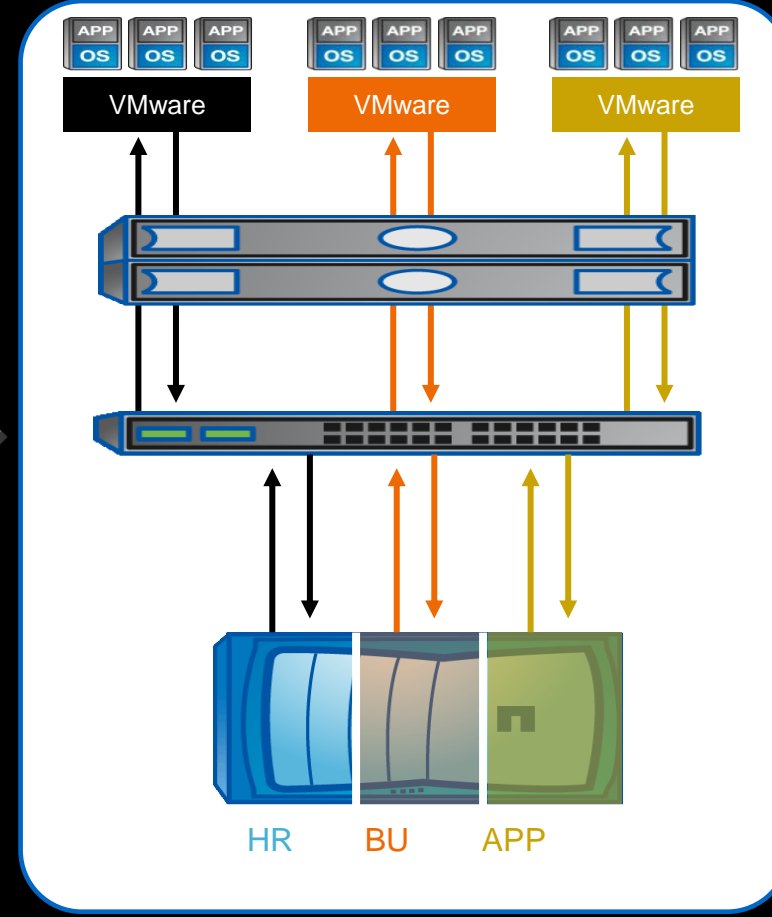
Chris O'Brien: Solutions Architect

Silos to Secure Multi Tenancy Architecture

Traditional Data Centers



Secure Multi-tenancy Architecture



Secure Multi Tenancy – Four Pillars

Availability

- Build resilient architecture
 - High Availability
 - Redundancy

Secure Separation

- Enable separation across tenants
- Increase security and access control

Service Assurance

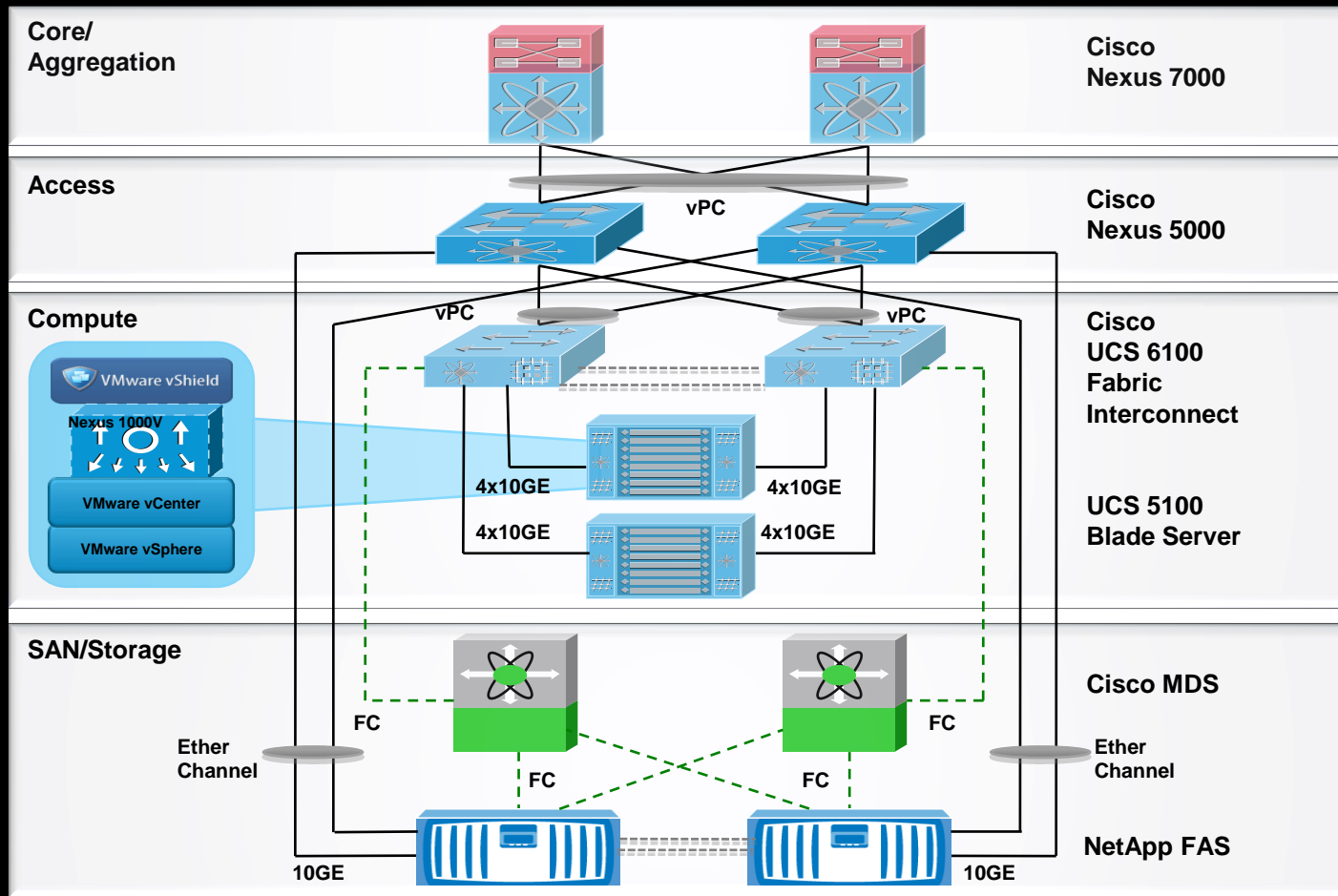
- Deliver consistent SLA across
 - Compute
 - Network
 - Storage

Management

- Simplify management
- End-to-end manageability

Secure Multi-tenancy Architecture

High Availability – Resilient End-to-End Architecture



Compute

- vCenter Heartbeat
- VMware HA
- vMotion/Storage vMotion
- UCS Fabric Redundancy

Network

- vPC
- EtherChannel
- N1KV Active/Standby VSM
- Link/Device Redundancy

Storage

- RAID-DP
- NetApp HA
- Snapshot
- SnapMirror/SnapVault

Secure Separation

Compute

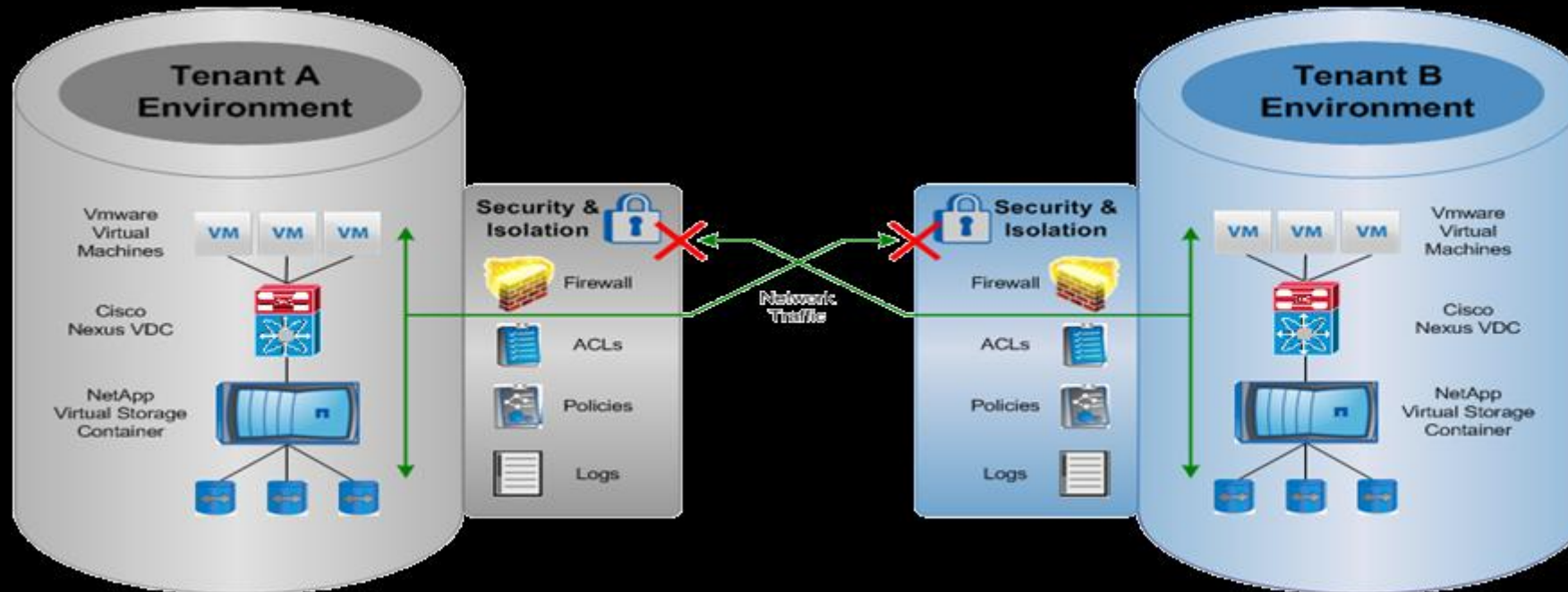
- UCS & vSphere RBAC
- VM Security with vShield and Nexus 1000V
- UCS Resource Pool Separation

Network

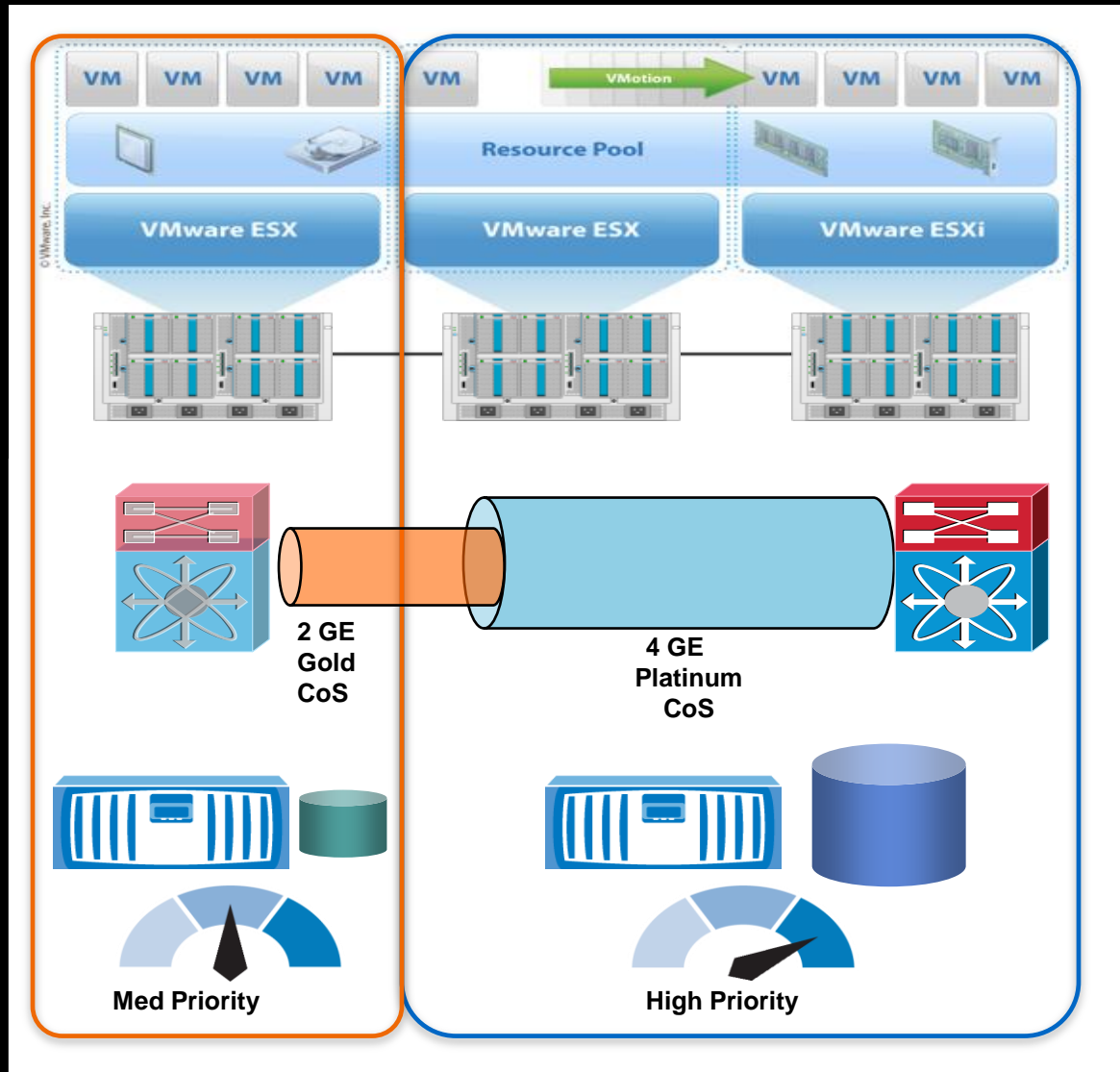
- Access Control List
- VLAN Segmentation
- QoS - Classification

Storage

- vFiler units
- IP Spaces
- VLAN Segmentation



Secure Assurance – Delivering SLA



Compute

- Expandable Reservation
- Dynamic Resource Scheduler
- UCS QoS System Classes for Resource Reservation and Limit

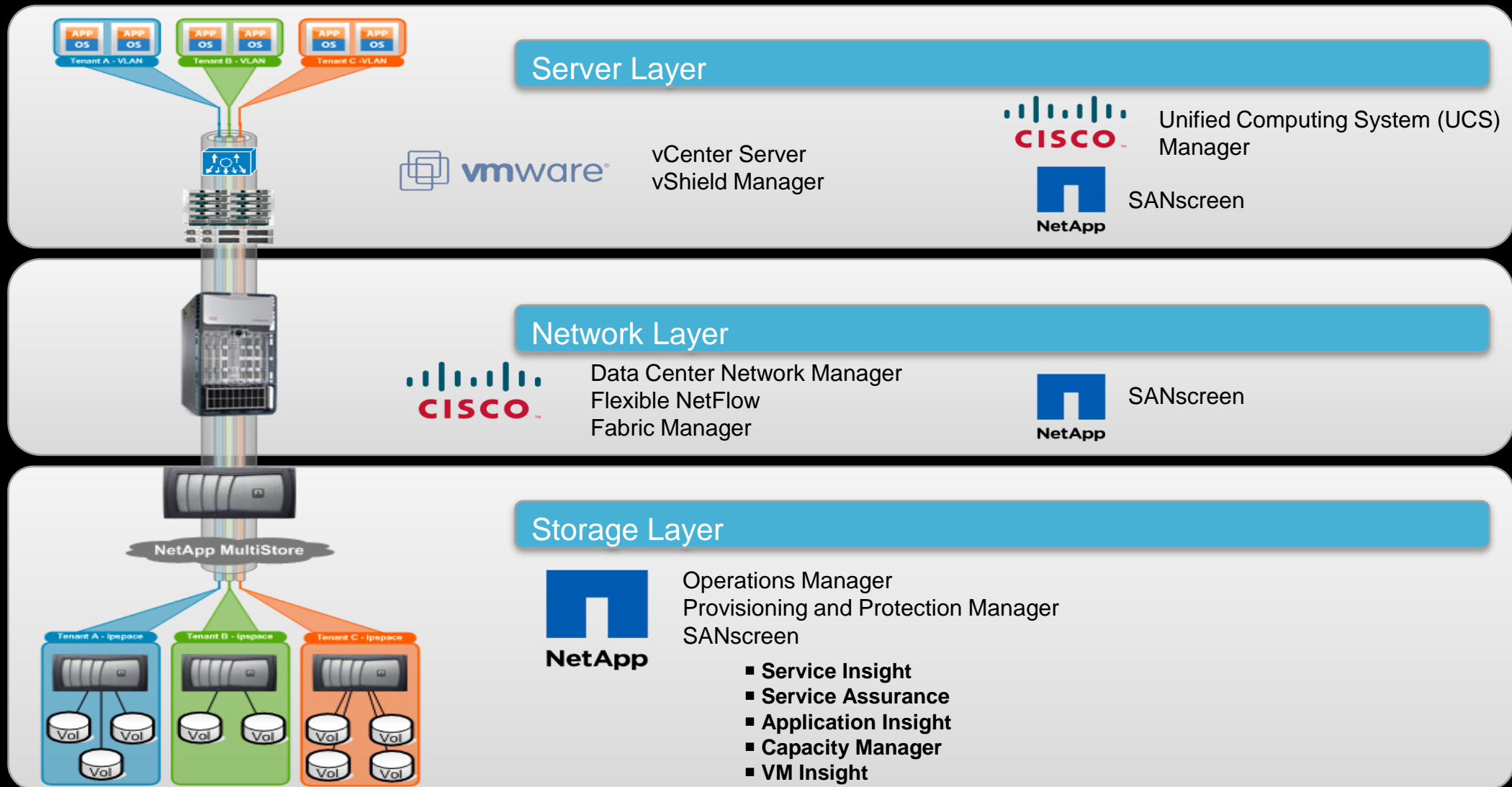
Network

- QoS - Classification
- QoS - Queuing
- QoS - Bandwidth control
- QoS - Rate Limiting

Storage

- FlexShare
- Storage Reservations
- Thin Provisioning

End-to-End Management



Multi Tenancy Customer Success Story – Tier 3



Provides enterprise-level managed services to companies spanning large enterprises to SMBs, offering end-to-end IT management

Challenge:

Offer clients DR; affordable, secure storage; and both infrastructure as a service (IaaS) and storage as a service (SaaS)

Solution:

Deliver IaaS and SaaS with multi-tenancy on NetApp® FAS3140HA, VMware® vSphere™, and Cisco Nexus 5000 switches

Benefits:

- Reclaimed 67% of storage with virtualized environment
- Reduced backup time for entire data center from 24 hours to 1 hour
- Cut time to restore customer data from 3.5 days to 1 hour

“With NetApp systems, NetApp MultiStore®, and VMware®, we have transformed our data centers into shared yet secure clouds of server, network, and storage resources.” – Jared Wray

Principal Tier 3

Three Industry Leaders Delivering One Solution

Cisco

NetApp

VMware

One Vision for Unified, Virtualized Infrastructure

New Validated Secure Multi-Tenancy

New Cooperative Services and Support

Mutual, Open Partner Ecosystem

Further Information



- **Design and Deployment Guidance**
 - <http://www.cisco.com/go/designzone>
 - <http://www.imaginevirtuallyanything.com/>
- **Solution Showcase:**
 - **Cisco Secure Multi Tenancy in the Data Center**
- **Solution Session**
 - **Cisco and NetApp's End-to-End FCoE Solution for VMware-Virtual Environments**
Sep 1st at 3:00pm



CISCO